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FACSIMILE DEVICE WITH REMOTE CONTROL FUNCTIONS
[Rimooto kontorooru kinoo tsuki fakushimiri soochi]

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(54) [Title of the Invention]

/1

Facsimile Device with Remote Control Functions

(57) [Summary]

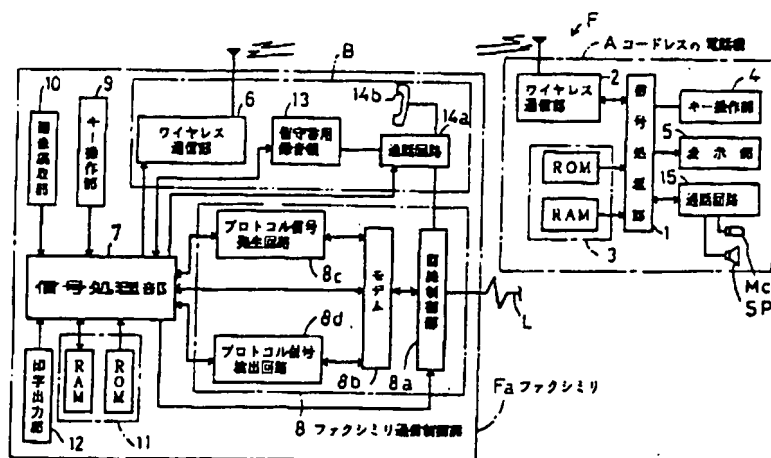
[Purpose]

This invention aims, when using a facsimile device, to eliminate a user's trouble to go to the location where the facsimile device is installed and to improve the operability of the facsimile device.

[Constitution]

This is constituted so that by providing a cordless telephone set (A) which transmits/receives a prescribed radio signal between it and a radio communications means (6) which is provided to the facsimile (Fa), when a prescribed control command is sent using a radio signal from this telephone set (A) to the radio communications means (6), the facsimile (Fa) executes actions according to the details of the control command.

* Number in the margin indicates pagination in the foreign text.



[Figure 1]

Key: A) Cordless telephone set; Fa) Facsimile; 1) Signal processing part; 2) Radio communications part; 4) Key operating part; 5) Display part; 6) Radio communications part; 7) Signal processing part; 8) Facsimile communications control part; 8a) Circuit control part; 8b) Modem; 8c) Protocol signal generating circuit; 8d) Protocol signal detection circuit; 9) Key operating part; 10) Image reading part; 12) Printing output part; 13) Answering machine recorder; 14a,15) Telephone call circuit

[Claims]

/2

[Claim 1]

A facsimile device with remote control functions is characterized by the fact that it is provided with a cordless telephone set which transmits/receives a prescribed radio signal between it and a radio communications means which is provided to the facsimile and that it is constituted so that when a prescribed control command is sent by a radio signal from this telephone set to the radio communications means, the facsimile executes actions according to the details of the control command.

[Detailed Explanation of the Invention]

[0001] [Industrial Use of the Invention]

This invention pertains to a facsimile device which is provided with remote control functions.

[0002] [Prior Arts]

In recent years, there has been a trend to develop facsimile devices as multi-functional facsimile devices which are added with, in addition to regular facsimile communications functions, various functions such as using an attached telephone set as an answering machine or having picture data stored in a picture memory transferred to other terminal devices, etc. All of the existing facsimile devices were provided with only prescribed key switches which were installed on the facsimile device operating panels as a means to make them execute not only regular transmission operations but also other various added functions.

[0003] [Problems that the Invention Solves]

In the existing ones, when performing a prescribed key operation to use the facsimile device, it was necessary for a user to go to the location where the facsimile device was installed, making the operation troublesome and time consuming. Specifically, in facsimile devices with numerous added functions, judging from the fact that unlike the case in which a desired manuscript is set on a manuscript table for facsimile transmission, there are numerous actions which the user can

execute by a simple key pressing operation without going to the location where the facsimile device is installed, it was inefficient to go to the location where the facsimile device was installed for mere key operations.

[0004]

This invention was proposed taking the above points into consideration, and aims to eliminate a user's trouble to go to a location where the facsimile device is installed whenever using the facsimile device and to improve the facsimile device's operability.

[0005] [Means to Solve the Problems]

This invention, focusing on the fact that numerous facsimile devices equipped with telephone sets have recently been developed, while various so-called cordless types of telephone sets have been developed and used as telephone sets, aims to solve the existing problems by having this cordless type telephone set serve as a remote terminal for controlling the facsimile actions. That is, this invention is a facsimile device with remote control functions which is constituted so that by providing a cordless telephone which transmits/receives a prescribed radio signal between it and a radio communications means which is provided to the facsimile, when a prescribed control command is sent using a radio signal from this telephone set to the radio communication signal, the facsimile executes the

set to the radio communication signal, the facsimile executes the actions according to the details of the control command.

[0006] [Functions]

In the facsimile device with remote control functions pertaining to this invention, which is characterized by the said constitution, when the prescribed command from the cordless telephone is output by radio, having the radio communications means at the facsimile side transmit it, the actions according to the details of the control command are performed at the facsimile side. That is, by operating the cordless telephone set, the facsimile can be remotely controlled. Accordingly, when using the facsimile, the user need not go to the location where the facsimile device is installed.

[0007] [Example]

One example of this invention is explained below referring to the figures. Figure 1 is a block diagram depicting one exemplary hardware constitution of a facsimile device (F) with remote control functions pertaining to this invention; Figure 2 is an oblique diagram depicting its outer appearance. The facsimile device (F) is constituted of a facsimile (Fa) in which a master telephone set (B) is built in and a cordless telephone set (A) as a subordinate telephone set which is formed independently from the facsimile (Fa).

[0008]

In the cordless telephone set (A), a radio communications part (2) to transmit/receive a radio signal to/from the facsimile (Fa), a telephone call circuit (15) equipped with a microphone (MC) and a speaker (SP), a memory part (3) which functions as a system memory, etc., a key control part (4) and a display part (5) which is constituted with a liquid crystal displayer, etc. are mutually connected to a signal processing part (1) which is constituted of a CPU, etc. Among these, the key operating part (4), as shown in Figure 2, is provided with ten keys (4a) which are used as dial keys; these ten keys (4a) are also constituted so as to function as keys to input action command codes to the facsimile (Fa). The key operating part (4) is also provided with a transmission key (4b) to operate it when transmitting an action command which is input in codes by the ten keys (4a) to the facsimile (Fa) side.

[0009]

When the transmission key (4b) is operated, the signal processing part (1) of the cordless telephone set (A) controls it so that a control command code signal which was input in advance by the operation of the ten keys (4a) is output via radio by a serial signal with the prescribed number of bits from the radio communications part (2). The control command signal, DTMF (push tone signal) can be used, but other signal codes can be used. In

addition, when the response signal mentioned below from the facsimile (Fa) is received by the radio communications part (2), the signal processing part (1) also has control functions to read the details of its demodulated signal and to display the details on the screen of the display part (5). In addition, it is constituted so that simultaneously with the screen display on the display part (5), a prescribed buzzing sound is generated. /3

[0010]

On the other hand, the facsimile (Fa) has the master telephone set (B) in a state in which it is built in as mentioned above; the radio communications part (6) of the master telephone set (B), answering machine recorder (13) and telephone call circuit (14a) provided with the handset (14b), etc. are connected to the signal processing part (7) which controls the respective parts of the facsimile (Fa). Since general telephone calls can be executed by using the cordless telephone set (A), it is unnecessary to provide a handset (14b) to the facsimile (Fa) side. In addition, in the facsimile (Fa), as the circuit equipment to execute general facsimile communications, the facsimile communications control part (8), key operating part (9), image reading part (10), memory part (11) and printing output part (12), etc. are also connected to the signal processing part (7). The facsimile communications control part (8) is provided with the circuit control part (8a) which allows

the call circuit (14a) and modem (8b) for the transmission/receipt of image data to switch/connect to the circuit (L), protocol signal generating circuit (8c) to execute a handshake prior to the transmission/receipt of the picture data for facsimile communications and protocol signal detection circuit (8d), etc.

[0011]

The signal processing part (7) of the facsimile (Fa) is constituted so that when the said control command radio signal which is output from the cordless telephone set (A) is received by the radio communications part (6), after reading the details of the signal, actions of the respective parts of the facsimile (Fa) are controlled to execute the actions according to the command details. It is constituted so that it controls the radio communications part (6), after completing these actions, to transmit a response signal, which indicates whether the actions from the radio communications part (6) is completed, to the cordless telephone set (A). The response signal is preferably a signal with details which differ depending on whether or not the action is properly completed.

[0012]

In the facsimile device (F) thus constituted, for example, when one wishes to reproduce a message recorded in the answering machine's recorder (13) to confirm the details, it will suffice

to perform an input operation of a preset reproducing code of the answering machine message using the ten keys (4a) of the cordless telephone set (A). When a key switch which exclusively performs an answering machine's message reproducing command is provided, it will suffice to operate only the key switch. Next, when the transmission key (4b) is operated after the said key operations, a control command instructing the reproducing action of the answering machine message is radioed to the radio communications part (6) of the facsimile (Fa) from the radio communications part (2) of the cordless telephone set (A). At the facsimile (Fa) which received the control command, the signal processing part (7) controls the answering machine recorder (13) to switch it to the reproducing mode; the voice signal, after being modulated at the radio communication part (8), is transmitted as a radio signal to the cordless telephone set (A). As a result, at the cordless telephone set (A), the voice of the answering machine message is output from the speaker (SP), enabling the user to easily confirm the details without going to the place where the facsimile (Fa) is installed.

[0013]

As soon as the reproduction of the answering machine message is appropriately completed, a response signal indicating that the prescribed actions have been appropriately completed is output from the radio communications part (6) of the facsimile (Fa).

When this response signal is received at the cordless telephone (A) side, the fact that the actions previously instructed were correctly completed is displayed on the screen in letters or symbols on the display part (5). In this case, if necessary, a prescribed buzzing sound informing that the response signal was received and the correct action was performed by the facsimile (Fa) is generated, making it possible for the user who heard the buzzing sound to easily determine that all reproduction works of the answering machine message have completed. Contrary to this, when it is impossible to reproduce the answering machine message due to malfunction of the answering machine's recorder (13), etc., unlike the above, a fact indicating the inability of execution is displayed on the display part (5). In this case, it is also possible to generate a buzzing sound. This buzzing sound can be the same sound as in a case in which the action of the facsimile (Fa) is correctly executed, but it is preferred that a different buzzing sound be generated. Accordingly, the user can be informed of whether the action of the facsimile (Fa) is good or not by confirming so with the display part (5) of the cordless telephone set (A) and the prescribed buzzing sound.

[0014]

Steps 100 through 103 of the flow chart shown in Figure 3 depict the sequence of the said series of actions at the cordless telephone set (A) side. Steps 200 through 204 of the flow chart

shown in Figure 4 depict the said series of actions at the facsimile (Fa) side. In the facsimile device (F), according to the same sequence as the reproducing operations of the answering machine message, actions other than these can be remotely controlled. That is, in this invention, for example, it is possible to allow various actions to be executed by the remote controlling operations from the cordless telephone set (A) as long as control commands for each action can be predetermined and as long as those actions can be executed by the substituted operations of various kinds of key operations of the facsimile (Fa) such as switching the facsimile (Fa) to the facsimile reception mode or transferring the picture data stored in the picture memory to other terminals or the data base, etc. (i.e. actions which do not require operations other than the key operations to set the manuscript by the user, etc.). However, in this invention, the kinds and numbers of concrete actions of the facsimile (Fa) which are remote controllable by the cordless telephone set (A) are not limited and can be randomly selected depending on the user's needs.

[0015]

In addition, in this invention, when a prescribed action of the facsimile (Fa) is completed, it is unnecessary to have it return a response signal to the cordless telephone set (A) side, displaying the details on the screen at the cordless telephone

set (A) side or generate a buzzing sound. As a means to inform the completion of the action to the user, other than those /4 mentioned above, for example, a means to make the facsimile device (Fa) side synthesize and output voices can be employed. According to this means, it is unnecessary to make the facsimile (Fa) transmit a response signal to the cordless telephone set (A) side from the facsimile (Fa).

[0016] [Effects of the Invention]

As clarified from the above explanation, the facsimile device with remote control functions pertaining to this invention provide effects such that a set action of the facsimile can be remotely operated using a cordless telephone set, eliminating the trouble of the user going to the location where the facsimile device is installed whenever using the facsimile device and improving the facsimile device's operability.

[Brief Description of the Figures]

[Figure 1] This is a block diagram depicting one exemplary hardware constitution of the facsimile device with remote control functions pertaining to this invention.

[Figure 2] This is an oblique diagram depicting the outer appearance of one exemplary facsimile device with remote control functions pertaining to this invention.

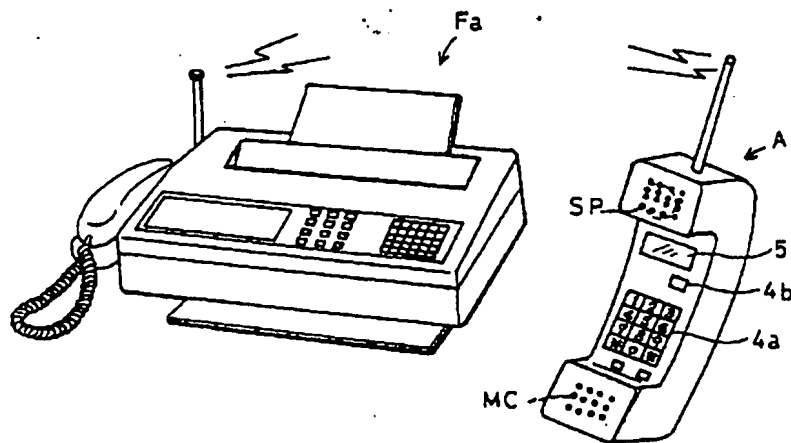
[Figure 3] This is a flow chart depicting one exemplary action sequence of the cordless telephone set.

[Figure 4] This is a flow chart depicting one exemplary facsimile action sequence.

[Explanation of the Keys]

- (1) Signal processing part (Cordless telephone set side)
- (2) Radio communications part (Cordless telephone set side)
- (4) Key operating part (Cordless telephone set side)
- (5) Display part (Cordless telephone set side)
- (6) Radio communications part (Facsimile side)
- (7) Signal processing part (Facsimile side)
- (8) Facsimile communications control part (Facsimile side)
- (9) Key operating part (Facsimile side)
- (A) Cordless telephone set
- (Fa) Facsimile
- (F) Facsimile device with remote control functions

【図2】 Figure 2



[Figure 1]

Key: A) Cordless telephone set; Fa) Facsimile; 1) Signal processing part; 2) Radio communications part; 4) Key operating part; 5) Display part; 6) Radio communications part; 7) Signal processing part; 8) Facsimile communications control part; 8a) Circuit control part; 8b) Modem; 8c) Protocol signal generating circuit; 8d) Protocol signal detection circuit; 9) Key operating part; 10) Image reading part; 12) Printing output part; 13) Answering machine recorder; 14a,15) Telephone call circuit

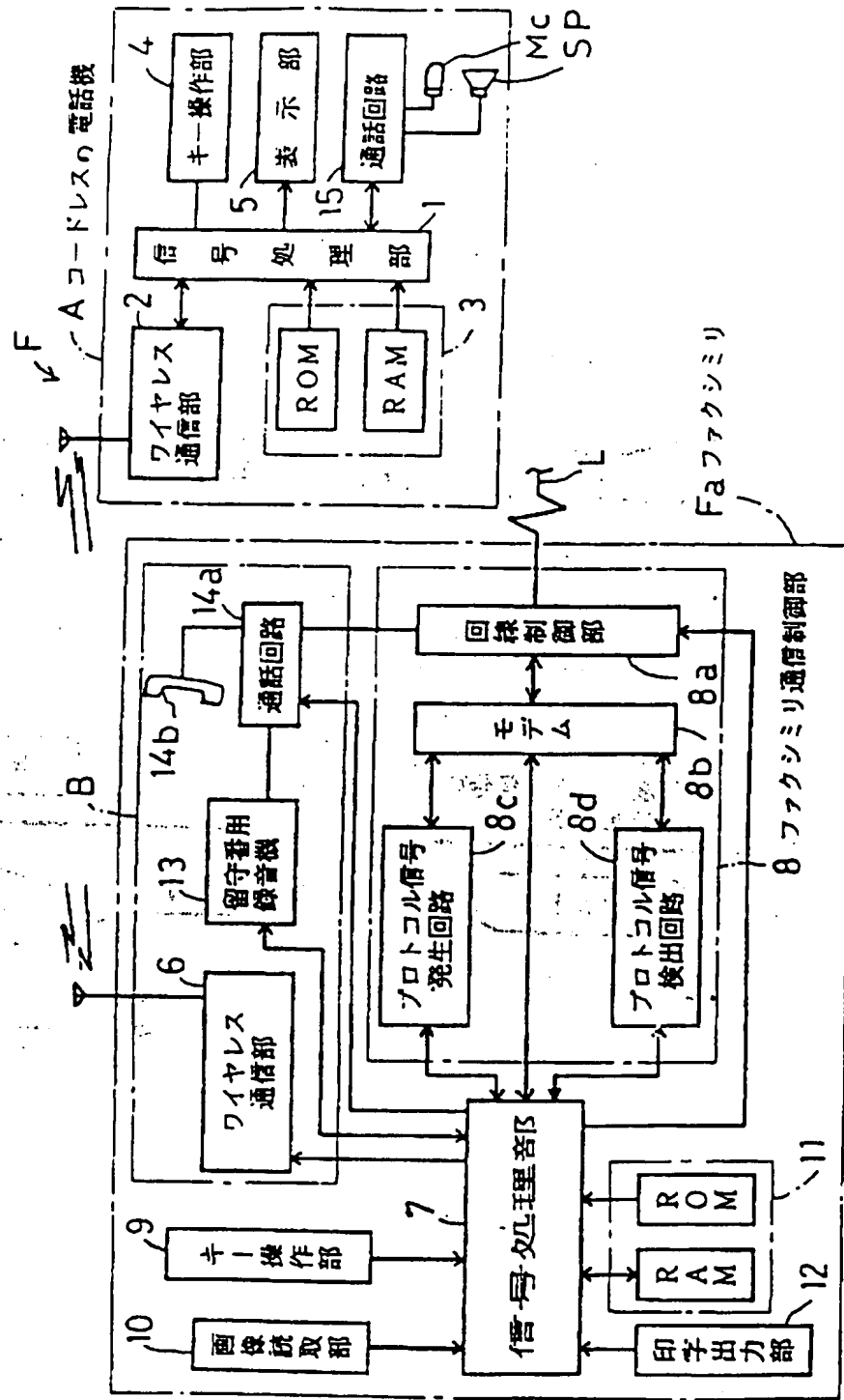
[Figure 3]

Key: S) Start (Cordless telephone set); 100) Is this an action command key operation?; 101) Transmit a control command; 102) Is a response signal received from a facsimile?; 103) Output the details of the response signal on the display part; E) End

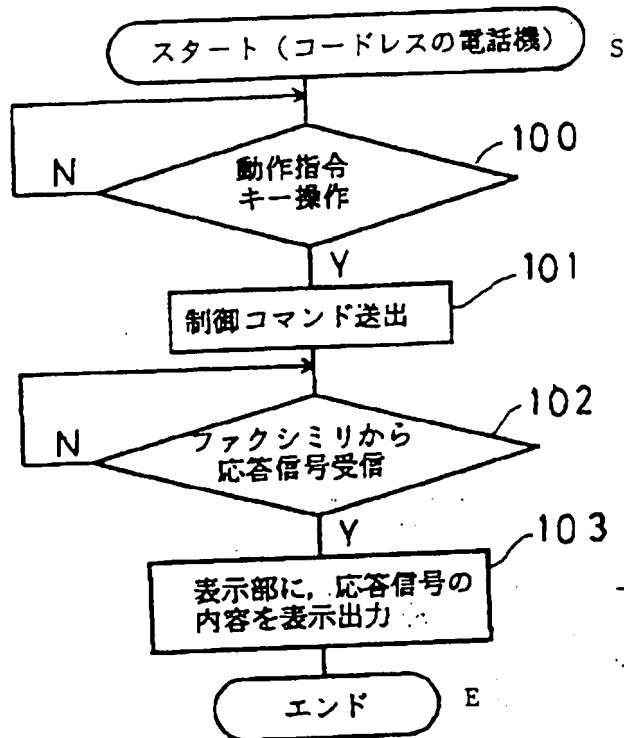
[Figure 4]

Key: S) Start (Facsimile side); 200) Is a control command from the cordless telephone set received?; 201) Read the details of the control command; 202) Execute the instructed action; 203) Is the action completed?; 204) Transmit a response signal; E) End

【図1】 Figure 1



【図3】 Figure 3



【図4】 Figure 4

